

End-Point Assessment Plan

Apprenticeship for Mammography Associate at Level 4

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Introduction

This end-point assessment (EPA) plan is designed to accompany the Apprenticeship Standard for Mammography Associate at Level 4. Mammography Associates work within the breast imaging workforce undertaking routine two-view mammography (x-ray images of breasts).

The apprenticeship will be delivered by education providers listed on the Register of Apprentice Training Providers (RoATP) and the Register of End Point Assessment Organisations (RoEPAO). The apprenticeship will combine on-programme academic and work based learning and assessment, together with an EPA that provides synoptic assessment of the achievement of knowledge, skills and behaviours outlined in the standard.

This plan details EPA requirements of the apprenticeship and will be of interest to apprentices, employers, education providers and breast imaging service users.

Gateway to End-Point Assessment

The apprentice must meet the criteria shown in Table 1 (below) in order to progress to the End-Point Assessment.

Criteria for progression to EPA

Table 1: Gateway Criteria for the Apprenticeship
<ul style="list-style-type: none"> • Mammography Associate must have completed a minimum of 500 mammograms unassisted meeting the NHS Breast Screening Programme standards. • The apprentice's employer, in consultation with the education provider, will confirm that the apprentice is eligible to progress to the EPA. • Apprentices without level 2 English and maths will need to achieve this level prior to taking the end-point assessment. For those with an education, health and care plan, or a legacy statement, the apprenticeships English and maths minimum requirement is Entry Level 3. A British Sign Language qualification is an alternative to English qualifications for whom this is their primary language.

End-Point Assessment

The EPA will provide independent synoptic assessment of the knowledge, skills and behaviours of the apprenticeship standard. The EPA Organisation (EPAO) must uphold all requirements for independent assessment in the EPA as identified in this plan.

The EPA will be completed in a maximum three-month period. The three-month period begins once the apprentice passes the gateway and includes the time needed for the apprentice to prepare for, and undertake, the EPA.

End Point Assessment Organisation: Roles and Responsibilities

The EPA will be delivered by the EPAO in accordance with this assessment plan.

The EPAO will deliver an independent assessment process. An independent assessor who has had no involvement with the apprentice's on-programme learning and assessment must be appointed to conduct the EPA. Table 2 (below) outlines the roles and responsibilities of individuals and organisations involved in preparing for, and conducting, the independent end-point assessment for the occupational apprenticeship standard.

Table 2: Roles and responsibilities in the EPA	
Role	Responsibilities
Apprentice	<ul style="list-style-type: none"> • Participates fully in their education, training and development • Takes responsibility for learning independently and preparing for the EPA • Contributes to the decision on the timing of their end-point assessment
Employer	<ul style="list-style-type: none"> • Enables the apprentice to apply their learning in the workplace • Determines when the apprentice is competent and ready to attempt the EPA • Provides the apprentice with the appropriate time and resources to complete the requirements of the EPA
Education Provider	<ul style="list-style-type: none"> • Advises the employer when the apprentice has achieved the on-programme requirements and is ready to undertake the EPA
End Point Assessment Organisation	<ul style="list-style-type: none"> • Recruits and trains independent assessors to conduct the EPA • Develops EPA materials and tools for the independent assessors • Sets the examination paper and makes arrangements for other assessment methods to be delivered • Ensures that independent assessors are occupationally competent and able to assess the performance of the apprentice using the EPA methods • Undertakes bi annual standardisation and moderation activities • Actively participates in the quality assurance procedures described in this assessment plan • Appoints an examiner for the EPA • Is responsible for confirming final grading decisions
Independent Assessor	<ul style="list-style-type: none"> • Assesses the completed examination paper • Conducts the clinical practice assessment • Determines the overall grading

End-Point Assessment Methods

The EPAO must implement the following EPA methods:

- Examination paper
- Clinical practice observation and discussion

The examination paper will consist of multiple choice questions. The clinical practice observation and discussion will be carried out by an independent assessor in the apprentice's workplace and also form the synoptic component of the overall assessment. This means that in addition to the skills and behaviours, there is also applied knowledge and understanding that will be assessed.

Table 3 provides an overview of the EPA assessment methods. Both methods have equal weighting for the final grading.

Table 3: Overview of end-point assessment methods				
Method	Area Assessed	Duration	Assessed by	Grading
Examination paper	Knowledge of: <ul style="list-style-type: none"> • Clinical Mammography • Mammography Science • Quality Assurance As specified in the apprenticeship standard (see Annex A, Table A1).	1 hour	EPAO Independent assessor	Distinction Pass Fail
Clinical practice observation and discussion	Skills and behaviours of all domains in the apprenticeship standard (see Annex A, Table A2).	3 hours	EPAO Independent assessor	Distinction Pass Fail

Examination paper

Apprentices will sit an examination paper of 1 hour duration under invigilated examination conditions. The examination will assess the knowledge and understanding for Mammography Associates identified for assessment in Annex A (Table A1). The exam will consist of 60 questions and must be passed prior to taking the clinical practice observation and discussion.

The examination may be online or paper based. The results of online exams will be delivered immediately. The results of paper based exams will be returned to the apprentice within two weeks.

The detailed requirements of the examination paper are as follows:

- The exam paper must have a total of 60 multiple choice questions.
- Each question must present the apprentice with 4 options from which the apprentice must select one option.
- The exam paper must include 5 diagram based questions.
- Each question answered correctly must be assigned 1 mark, any incorrect or missing answers must be assigned 0 marks.
- Apprentices must have 1 hour to complete the exam paper.
- The exam paper must be closed book i.e. the apprentice cannot refer to reference books or materials.
- Apprentices must complete the exam paper in the presence of an EPAO invigilator.
- The exam must be delivered and invigilated in controlled conditions.
- The exam paper can be paper-based or delivered electronically. In both cases apprentices must sit the exam in invigilated conditions.
- Exam papers must be marked by EPAO administrators/examiners following a marking guide produced by the EPAO. Electronic marking is also permissible.
- The following grading boundaries must be used for the examinations:
 - > Distinction (48 or more correct answers)
 - > Pass (30 – 47 correct answers)
 - > Fail (29 and below correct answers)
- Apprentices must pass the exam paper to progress to the next stage of the EPA i.e. the observation of clinical practice and discussion. Passing the exam paper will indicate the apprentice has the necessary underpinning knowledge for clinical practice.
- It is recommended that EPAOs develop exam questions by working with representative employers and experts in the field.
- EPAOs must ensure the examination is available for apprentices within their three month EPA time period, allowing for marking and observation of clinical practice
- EPAOs must develop 'question banks' of sufficient size to prevent predictability and review them regularly to ensure they are fit for purpose
- EPAOs must ensure that apprentices have different questions in the case of re-sits or re-takes.

The EPAO is responsible for setting and marking the examination paper and construction of the answer marking guide. It is recommended that EPAOs develop these exams by working with representative employers. The examination paper will be marked using the answer

marking guide for the examination. Prior to administering the examination, the examination paper and answer guide must be reviewed by an external examiner appointed to the EPAO in order to assure external benchmarking and consistency. The examination will be marked by the independent assessor who will indicate a pass, distinction or fail.

The examination must assess apprentices against the occupational apprenticeship standard knowledge and understanding as shown in Annex A (Table A1). The exams should have a good distribution of questions across the domains of the occupational apprenticeship standard as shown in Table 4 (below). It is accepted that some questions may link to two or more domains therefore these figures are approximate. EPAOs must seek to achieve this distribution of questions in each exam paper.

Occupational apprenticeship standard - domains	Approximate number of questions per exam paper
Clinical mammography	40 MCQ (1 mark each, includes 2 diagram question)
Mammography science	15 MCQ (1 mark each, includes 1 diagram question)
Quality Assurance	5 MCQ (1 mark each, includes 2 diagram question)
Total:	60 MCQs

Observation of Clinical Practice and Discussion

The observation of clinical practice and discussion is undertaken by the independent assessor. The observation and discussion will take place in the apprentice's workplace. It must last for three hours (plus or minus 10%) at the discretion of the assessor and to provide scope for an apprentice to demonstrate their full abilities. The apprentice will be observed providing mammography to a succession of individuals. The focus of the discussion will be to ensure that the apprentice has the opportunity to explain knowledge, skills and behaviours that did not occur naturally during the observation.

It is likely that the apprentice will provide mammography to one individual every 15 minutes. There is likely to be 5 minutes of discussion with the assessor at the end of each appointment at the assessors discretion. At the end of the overall observation period there will also be a discussion with the assessor which will focus on any areas from the standard not covered by the observation and the final grading. A three hour observation and

discussion period should allow the apprentice to provide mammography to around 8 individuals in total.

The observation must be terminated if at any time during the assessment the assessor observes unsafe practice. In these circumstances, the apprentice will be graded as a fail. In addition, should an unexpected event occur during the observation, the observation will be paused and may be resumed from a point deemed suitable by the assessor.

The observation of clinical practice and discussion must provide evidence of the apprentice demonstrating skills, knowledge and behaviours from the occupational apprenticeship standard as shown in Annex A (Table A2).

The detailed requirements of the observation of clinical practice and discussion are as follows:

- The required knowledge, skills and behaviours must be observed by the independent assessor.
- The answers to questions during discussions must also be documented by the independent assessor.
- Observations must be conducted in a realistic work situation under normal conditions. It is anticipated that end point assessment organisations will use the apprentice's normal work environment to carry out the observation.
- Observations must be determined and standardised by end point assessment organisations.

Apprentices must have passed the exam paper to progress to the observation of clinical practice and discussion. Passing the exam paper will indicate the apprentice has the necessary underpinning knowledge for clinical practice.

Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take. A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will be required to re-sit the whole EPA.

Any assessment method re-sit or re-take must be taken during the maximum EPA period, otherwise the entire EPA must be taken again, unless in the opinion of the EPAO exceptional circumstances apply outside the control of the apprentice or their employer.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to distinction.

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

Grading

Both assessment methods will be graded as pass, distinction or fail. Both assessment methods have equal weighting (see Table 6).

Knowledge Test

Assessment method	Distinction	Pass	Fail
Examination paper (60 questions in total)	48+ correct answers	30 – 47 correct answers	29 or less correct answers

Observation in Clinical Practice and Discussion

Fail

The apprentice fails to meet the pass criteria outlined below or the independent assessor has to stop the observation because they have observed unsafe practice.

Pass

The apprentice meets all of the core skills and behaviour requirements in Annex A by:

1. Positively identifying individuals and preparing the equipment, environment and individuals for the mammography examination while treating them and their accompanying companions with dignity and demonstrating discretion (S1 – 3, S20, S22, S28 – 29, K22 – 23, K26, K33, BV1 – 2, BV5)
2. Operating mammography equipment safely and effectively to position and immobilise individuals, adapting technique when necessary, to achieve images of high quality, referring to an appropriate member of the team where required (S4 – 6, S11 – 12, S14, S17, S21, S24, S27)
3. Assessing the technical quality of images produced, recognising normal breast anatomy, physiology and pathology, and observe any external abnormalities that need to be recorded (S7)
4. Process and store images using the dedicated IT systems ensuring comprehensive and accurate records are maintained and advise individuals of the results process and any further imaging or treatment that has already been scheduled (S8 – 10, S13)
5. Demonstrate through evidence their participation in mammography equipment quality control (S15 – 16)
6. Practice safely within relevant frameworks and protocols and work independently and collaboratively to deliver person centred care (S17 – 18, S23, K20 – 21, K24 – 25)
7. Demonstrate through evidence their ability to manage work effectively and adapt to changing service needs (S19, BV4)
8. Demonstrate through evidence the use of reflective practice, engagement in CPD and the courage to challenge areas of concern (S25, BV3)
9. Demonstrate understanding of the principles of audit and research (K29)
10. Demonstrate understanding of breast care and importance of health promotion to clients (S26, K27 – 28)
11. Demonstrate through evidence their understanding of the role and function of the multidisciplinary team and the effectiveness of team working (S27, K30 – 31)
12. Safeguard individuals in accordance with legal and organisational requirements and maintain health and safety in the workplace (S30, K32, K34)

Distinction

The apprentice meets all of the knowledge, skills, values and behaviours in Annex A as for a pass, and in addition, they can:

1. Demonstrate or discuss an occasion when they have utilised different modes and levels of communication with a difficult individual that resulted in a positive outcome (S1 – 3, S20, S22, S27 – 28, K22 – 24, K26, K33, BV1 – 2, BV5)
2. Demonstrate or discuss how to identify and correct issues of technical image quality (S7, K1, K3, K5, K8)
3. The apprentice is able to give an example of good/poor record keeping that they have encountered and what improvements were made from this (S8 – 10, S13)
4. Demonstrate understanding of the importance of individual quality control tests and their impact and relevance to clinical context (S15 – 16, K18 – 19)
5. The apprentice can explain how their practice has changed as a consequence of reflection (S25, BV3)

Based on the results of the individual assessment methods the overall apprenticeship grade will be established as shown in the Table 6 below.

Table 6: Overall apprenticeship grade		
Examination paper	Observation of clinical activity	Apprenticeship grade
Distinction	Distinction	Distinction
Pass	Distinction	Pass
Distinction	Pass	Pass
Pass	Pass	Pass
Distinction	Fail	Fail
Pass	Fail	Fail
Fail	Fail	Fail

End Point Assessment Organisation – Internal Quality Assurance

End point assessment organisations must ensure robust internal quality assurance processes in line with the requirements of this assessment plan.

**Table 6: Internal Quality Assurance
Roles and Responsibilities of the EPAO**

The EPAO must:

- publish EPA guidance to apprentices, employers and training providers in relation to the requirements of the examination paper and observation of clinical activity as set out in this plan
- ensure that there is consistency and comparability in terms of the breadth and depth of each assessment, to ensure assessments are reliable, robust and valid
- it is recommended that a bank of examination questions is developed and maintained in conjunction with employers
- publish assessment guidance and tools for the examination paper and observation of clinical activity using Annex A
- appoint and approve independent assessors to conduct marking and grading of the EPA
- ensure independent assessors are:
 - HCPC Registered radiographers currently practicing in mammography
 - currently working in the NHS Breast Screening Programme
 - holding or working towards Society of Radiographers practice educator accreditation or holding a PG Cert in education or equivalent
- provide training for independent assessors in the requirements for the operation, marking and initial grading of the examination and observation
- provide training for independent assessors to enable them to undertake fair and impartial assessment, making judgements about the application of knowledge, skills and behaviours to the workplace setting.
- ensure internal moderators and external examiners are trained in EPA assessment and assurance processes and undertake regular continuing professional development.
- develop compensatory assessment for learners with special requirements to allow reasonable adjustments to be made to assess the knowledge, skills and behaviours of the apprentice
- provide guidance in relation to the EPA i.e. making reasonable adjustment, eligibility to enter EPA and conflict of interest.
- consider evidence in relation to reasons for failing an EPA and confirm re-sits, where the learner may have failed due to extenuating circumstances
- develop and manage a complaints and appeals procedure
- hold bi annual meetings for independent assessors to ensure consistent application of the guidance
- monitor and evaluate the attendance of independent assessors at bi annual meetings (assessors should attend at least one meeting per year)
- prepare an annual evaluation report for the relevant education providers and employers, acting on recommendations for improvement

External Quality Assurance

External Quality Assurance is to be provided by The Institute for Apprenticeships.

Implementation

Affordability

The approach presented offers an affordable solution to assessment for this apprenticeship. The approach is robust and will ensure the end point assessment will meet the needs of all employers including those from public and private sectors.

It is believed that the approach is manageable and feasible as the necessary expertise already exists within the sector. Utilising existing expertise will ensure a sufficiency of qualified assessors with a good geographical spread.

Volumes

Once the apprenticeship reaches steady state it is anticipated that there will be in the region of 25 new starts a year.

Annex A: Knowledge, skills and behaviours attributed to End-Point Assessment for the Mammography Associates

1) Examination paper

The EPAO will provide 60 questions from its question bank that enable the apprentice to demonstrate their knowledge and understanding of clinical mammography, mammography science and quality assurance. The grading of this component of the EPA is described on page 11 of this document.

In preparing for the exam, apprentices should be guided by the knowledge and understanding in Table A1.

Table A1: Mammography Associates – knowledge requirements (for examination paper)

Domain	You will know and understand:
Clinical Mammography	K1 Normal breast anatomy, physiology and pathology K2 Principles of informed consent and the actions to take if consent is withdrawn K3 NHSBSP standards and quality assurance process K4 The role of other imaging and treatment modalities K5 The types of external abnormalities of the breasts that need to be observed and recorded K6 Effective positioning and immobilisation K7 Adaptation of technique to optimise image quality K8 Standards for assessing the technical quality of images K9 When it is necessary to refer to an appropriate member of the multi-disciplinary breast care team, including the supervisory radiographer K10 How to advise individuals of the results process and give additional information within the scope of your responsibility K11 Systems for image processing, storage and retrieval
Mammography Science	K12 How radiation is produced and its interaction with matter K13 The radiobiological effects of radiation - short and long term risks K14 Radiation protection of self and others K15 The relationship between anatomy, pathophysiology and the imaging process K16 The application of ionising radiation regulations K17 The basic design, function and operation of mammography image acquisition and display equipment
Quality Assurance	K18 The principles and methods of quality control and quality assurance in mammography K19 The relevant national standards and local guidelines for quality assurance

2) Observation of Clinical Practice and Discussion

The observation of clinical practice and discussion will assess knowledge, skills and behaviours across all of the domains within the occupational apprenticeship standard. The grading of this component of the EPA is described on page 11 of this document-

In preparing for the observation of clinical activity, apprentices should pay particular attention to the knowledge, skills and behaviours outlined in Table A2.

Table A2: Mammography Associates – knowledge, skills and behaviours (for observation of clinical practice and discussion)

Domain	You will be able to:
Clinical mammography	S1 Positively identify individuals attending for mammography S2 Prepare equipment and environments appropriately for mammography S3 Prepare individuals appropriately for mammography S4 Employ effective positioning and immobilisation to achieve images of high quality S5 Operate mammography equipment safely and effectively within protocol S6 Refer to an appropriate member of the multi-disciplinary breast care team where required S7 Assess the technical quality of images produced S8 Process and store images S9 Advise individuals of the results process and give any necessary additional information within the scope of your responsibility S10 Maintain comprehensive and accurate records of the procedure
Mammography science	S11 Maintain the radiation safety of all individuals in the working environment in line with current legislation S12 Work in accordance with ionising radiation regulations S13 Use information management systems effectively S14 Safely operate mammography equipment
Quality Assurance	S15 Participate in mammography quality control S16 Adhere to NHSBSP standards of performance

Professional Practice	<p>S17 Practise safely within relevant legal, ethical, professional and local frameworks and protocols</p> <p>S18 Work individually, collaboratively and in partnership to deliver person-centred care</p> <p>S19 Manage self and own work effectively</p> <p>S20 Apply effective interpersonal and communication skills to engage with individuals</p> <p>S21 Demonstrate accountability, recognising and responding appropriately to strengths and limitations in own knowledge, skills and attributes</p> <p>S22 Ensure own actions promote equality and diversity</p> <p>S23 Comply with legal, professional and local requirements for the delivery of clinical mammography</p> <p>S24 Make use of supervision and pastoral care</p> <p>S25 Make use of reflective practice to engage in continuing professional development</p> <p>S26 Engage in effective health promotion</p>
Team Working	<p>S27 Work effectively within the multi-disciplinary breast care team</p> <p>S28 Promote a positive, safe and effective working environment</p>
Health and Safety	<p>S29 Demonstrate proficiency in basic life-support techniques, infection control, safe moving and handling and other mandatory training requirements</p> <p>S30 Safeguard individuals in accordance with legal and organisational requirements</p>
Domain	You will know and understand:
Professional Practice	<p>K20 The relevant legal, ethical, professional and local frameworks and protocols in the mammography context</p> <p>K21 Principles of person-centred care</p> <p>K22 How to meet the care needs of individuals and their accompanying companions with sensitivity and respect</p> <p>K23 Principles of effective interpersonal and communication skills</p> <p>K24 How to exercise personal responsibility and work within defined parameters of practice, legislation and local policies</p> <p>K25 How to operate within your own scope of practice</p> <p>K26 The responsibilities and professional values of a mammography practitioner</p> <p>K27 The importance of personal health, resilience and wellbeing</p> <p>K28 The value of appropriately-timed health promotion interventions</p> <p>K29 Principles of audit and research</p>
Team working	<p>K30 The role and function of the multi-disciplinary breast care team</p> <p>K31 Principles of effective team-working</p>
Health and Safety	<p>K32 Basic life support techniques</p> <p>K33 Principles of infection control, safe moving and handling, and other mandatory training requirements</p> <p>K34 How to maintain health and safety in the workplace</p>

Behaviours and values	BV1 Treat individuals with dignity, respecting their beliefs, culture, values and preferences BV2 Adopt an empathic approach and demonstrate discretion BV3 Demonstrate courage to challenge areas of concern BV4 Be adaptable and responsive to changing service needs BV5 Be caring and compassionate, honest, conscientious and committed to delivering a high quality experience to individuals attending for mammography
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